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23 September 1955

Observations on Agriculture
in the Soviet Union

The American Agricultural Delegation spent approximately five weeks travelling in agricultural areas of the U.S.S.R. We visited farms near Moscow, Kharkov, Dnepropetrovsk, and Zaporozhe in the Ukraine, Novorossisk and Krasnodar, Rostov, Stalingrad, Kuibyshev, Alma Ata, Tashkent and Rubtsovsk (in Siberia). Basically the trip was a conducted tour, with the delegation having no choice of the farms visited with but one exception. We were shown farms that were either average in quality or better. Some were the show places customarily shown to visiting delegations. For example, one farm near Tashkent had been visited by six foreign delegations this year.

However, we were shown many farms that were near the average in terms of income and productivity for the area where located. And we were shown areas where crop conditions were quite unsatisfactory this year.

While our trip did not give us the perspective on Russian agriculture that one would like, I suspect that we were shown far more than any other foreign group has seen in the last fifteen years.

Recent Changes in Soviet Agricultural Policy

There has been a series of significant changes in Soviet agricultural policy in the past two years. In late 1953, in early 1954 and in February of this year several decrees were issued dealing in detail with agricultural problems. The purpose of these changes was to obtain a substantial increase in the output of farm products. Basically the decrees were devoted to three major problems. First, it was deemed necessary to increase incentive -- to increase the personal interest of the peasant --

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to get more production. Second, since the efforts to increase yield on existing farm land had failed, it was considered necessary to bring into production about 75 million acres of idle or virgin land. Third, since livestock production had been lagging, in part because of insufficient feed, the corn acreage was to be expanded to 70,000,000 acres to provide the required feed base.

What I saw on this trip leaves no question that measures have been taken that are relevant to each of the three problems. Higher prices, lowered obligatory deliveries and reduced taxes have increased farm incomes and the incomes of the peasants. Corn acreage has expanded from 10 million to about 40 million acres in one year and approximately 45 million acres of idle and virgin lands were sown to grains in 1954 and 1955. The increase in the corn acreage and the sowing of virgin lands represent major adjustments and changes. In fact, I must admit considerable surprise that so much has been done in such a short time.

Reasons for Concern about Agriculture

Why have the Russians become so concerned about agriculture? Why has the government been willing, on the one hand, to allow farm incomes to increase quite substantially and, on the other hand, to make the huge investments required by the new lands program? One can not be certain of the answers to these questions, but some conjectures are possible.

The Russian diet is a monotonous one, based primarily upon grains and potatoes. About 70-75 per cent of total calories consumed come from these two sources, compared to about 35 per cent in the United States. Other food items are available only irregularly at the fixed prices charged in the State Stores. Food prices in the free markets, where collective farms and individual peasants sell their products after meeting obligatory deliveries and supplying their own needs, are high. During the winter, fruits and vegetables are not available anywhere, even on the free market. Many times even potatoes can not be purchased.

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Some idea of how high food prices on the free market are can be seen by comparing a few prices with the average factory wage of 750 rubles per month. Fats are especially expensive, with salt pork, pork fat or lard selling at 13 to 18 rubles per pound; sugar, when available, costs 8 or 9 rubles. Meat is priced at 8 to 12 rubles a pound, with the fatter cuts selling for more than the lean.

Clothing is probably higher priced, relative to wages, than is food. A cheap looking print dress of synthetic fiber sells for 300 to 500 rubles, while a man's wool suit costs from 1200 to 1700 rubles, a man's shirt of reasonable quality costs 120 to 150 rubles.

We saw no evidence, however, that people were hungry. While the total calorie intake is probably 10 to 15 per cent below ours, it is still adequate. However, it is reasonably certain that agricultural output has not increased during the last four or five years. In fact, production of food in both 1953 and 1954 may have been as much as 10 per cent below the 1950 level. The fall in output was due to a drought in Asiatic Russia in 1953 and in European Russia in 1954, but even with average weather output would probably not have exceeded 1950.

It was not possible to obtain from Soviet officials an accurate indication of farm output in recent years. We were told that grain output in 1954 was somewhat more than 96 million tons. I was informed by an official who travelled with us that the 1950 grain crop was the largest since the war and that the 1952 grain crop exceeded that of 1954. Thus with smaller grain crops it is reasonable to assume that agricultural output has not increased since 1950 and may have actually declined.

There did not seem to be any particular optimism about this year's crop. While the grain crops were satisfactory in the Ukraine and in the Kuban, the various farms that we visited indicated that yields were about average this year. In the Volga region the crop yields were apparently about average; near Stalingrad we were told that yields were going to be below average this year. The relatively good yields in the European areas are apparently going to be offset by a quite serious and widespread drought in Kazakhstan and western Siberia.

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Russian population is increasing at the rate of 1.5 per cent each year. Faced with the possible prospect of a stagnant agricultural output and 3,000,000 additional mouths to feed every year, it is perhaps not surprising that the men in the Kremlin became disturbed.

New Lands Program

It is too early to know with any exactness what effect the steps mentioned earlier will have upon agricultural output. The biggest question mark is the virgin lands program. And it represents the biggest gamble of the three. The cost in labor, equipment and buildings is going to be huge. Each new State farm established may cost the Soviet government as much as 35,000,000 rubles or about 500 rubles per acre of crops. If all the new lands were to be developed by State farms -- a very large percentage will be -- the total cost might be 35 billion rubles or perhaps as much as 5 to 7 billion dollars. Though the ruble may have a purchasing power of only 7 or 8 cents for consumer goods, it may be worth as much as 15 to 20 cents for machinery and construction materials.

The risk is great because of the weather variability in Kazakhstan and western Siberia, where most of the new lands are located. Rainfall is limited, nowhere exceeding 15 inches and much of the area receives only 10 to 12 inches. In some years, and 1955 is such a year, less than 2 inches may be received during the growing season.

There is a distinct possibility that the Soviet Union will create a gigantic dust bowl by plowing up so much grass land. When we landed at Rubtsovsk in the Altai territory in Siberia dust clouds could be seen at 3,000 feet. The rest of our party which landed near Akmolinsk in Kazakhstan reported the same thing. This dust had apparently resulted in part from travel on the roads, and the machines in the fields. Nonetheless, it implied that if the winds did blow as they do in this area, the dust storms would soon follow.

Even if some of the new lands run into difficulty, much of the new development will probably produce enough grain to make continued cultivation profitable. A significant, but unknown, percentage of the new lands is adjacent to areas that have been farmed successfully for

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several decades. The Rubtsovsk area represents such a case; the new lands were quite similar to land that had been farmed before. The new land had apparently not been farmed before because there was neither the manpower nor equipment to cultivate it. The soil was generally a good black soil, though sandy soils were encountered. Last year wheat yields averaged 35 bushels per acre in the Rubtsovsk area and about 22.5 bushels in the Altai territory. This year yields will be less than half that much because of the limited rainfall. In the new lands near Akmolinsk yields were much lower -- about 15 bushels last year and from 2 to 6 bushels this year.

Wherever the yields will average 8 or 10 bushels per acre for a period of years cultivation will probably be maintained. Only time can tell how large this area will be or what the average yield on all land remaining in cultivation will be. It seems fairly certain that some of the new lands will be abandoned, but Americans should not be surprised if a substantial fraction remains in crops. However, I doubt that the net increase in wheat output (after subtracting seed requirements) will be more than 500,000,000 bushels or about 15 per cent of grain output in 1950. Seed requirements are high, averaging about 1-1/2 bushels per acre. Thus my estimate assumes 60,000,000 acres of grain yielding about 10 bushels per acre over a period of years.

While a net increase in grain output of 500,000,000 bushels is not an insignificant increase, some perspective is gained if it is compared to the current population increase. If the present rate of growth of population continues, the present diet can be maintained on the basis of this increase for only 8 or 9 years. This is because the new lands program is almost a once and for all expansion of grain output. Once the present program is completed there will not be much further room for expansion of crop acreage except on land which is now covered by timber. Russian officials indicated that they do not now intend to expand crop production in those areas that would require large investments in clearing the land, drainage, liming and fertilization.

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Corn Program

The expansion of the corn area by 30 million acres in a year comes as a surprise to me. Apparently a great deal of pressure was applied to achieve so much. Contrary to the new lands program, the government invested almost nothing in the corn program. Collective farms were told to increase corn acreage and to build the silos required to store the silage. The farms had to use their own funds and own labor and materials. On many farms that we visited we saw 20 or 30 or 40 new silos that had never been used. We visited farms that had not planted corn prior to 1955, others that had no corn prior to 1954. Yet they had made the rather large investment required for silos even though they had no assurance corn would be a satisfactory crop for them.

The Russians are planting corn in areas receiving 12 inches or less of rainfall and in areas where the growing season averages 90 days or less. We saw corn in dry land areas that would not yield 5 bushels to the acre; I saw corn on an experiment station at Moscow which would not produce any ears because the spring was so late.

There is no question that corn is a highly efficient crop in that it provides a large output of feed per acre, especially when the whole plant is used for feed as silage. And this is what the Russians intend to do. Few crops can compete with corn in terms of feed yield per acre. However, corn requires a great deal of labor, much more than crops like wheat, oats or barley. The American delegation generally agreed that in the drier areas, including those of the new lands planted to corn, that grain sorghums would have given both higher and more stable yields. In the colder areas, good legume hays or potatoes would also represent a superior alternative.

The expansion in corn acreage has come and will continue to come at the expense of other feed crops. While corn used as silage will yield more than the small grains which it is replacing, the gain will probably not exceed one third. In Russia most of the straw is fed which means that the entire plant of oats and barley is used.

The corn program has one merit which should not be overlooked. On the whole, most farms have insufficient pastures for their livestock, and pastures are of very poor quality indeed. The amount of hay produced is limited and again the quality is poor. A significant

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part of the expanded corn acreage is harvested as green feed in July and August and the effect on milk output per cow has been quite apparent.

In the limited rainfall areas of the U.S.S.R., and this includes at least three fourths of all crop land, the pastures are of limited value after the spring growth stops. Thus the milk cows were previously fed little in July and August and the milk flow must have been cut seriously. Once this happens, it is difficult to regain full production. The corn now allows the farmers to provide adequate feed during this important period. It is possible that milk production will increase 10 or 15 per cent as a consequence.

If the Russians increase the total number of livestock as a result of the better seasonal distribution of feed resulting from the corn program, difficulties may well be incurred. What is likely to happen is that feed will become short in the late winter months rather than during the early part of the summer. At least this possibility seems worth watching for.

While Krushchev has emphasized the role of hybrid corn in the expansion of corn production in the United States, I saw no evidence that the Russians have any true corn hybrids. On all our travels, I saw no fields in which hybrid corn was being produced. I visited experiment stations, seed selection stations and a state seed grain farm where one would have expected to find hybrid seed being produced.

It is worth noting that in the areas in the United States that are most comparable to the major grain areas in Russia hybrid corn has not had a significant effect on grain yields. In North Dakota, for example, the average corn yield during the 1940's was 22.4 bushels and only 1.4 bushels more than during the 1920's. In South Dakota the corn yield increased from 24.7 to 25.8 bushels or only about a bushel an acre. In Iowa corn yields increased by 11 bushels per acre or by more than a fourth between the same two decades. Thus the Russians will not be able to get very large increases in yields through the development of hybrid corn, if American experience can be used as a guide.

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Improvement in Farm Income

The final change that I will discuss is the improvement in the income of the farm population. How much farm income changed as a result of the policy changes which occurred in 1953 can not be said. When officials of the Ministry of Agriculture and Ministry of State Farms were asked what the income of the farm population was, they claimed they did not know. But we were told on many collective farms that the number of workers on farms had increased quite significantly during the last two years. In 1954 the number of so-called able-bodied workers increased by 1.5 millions, according to Benedictov, Minister of State Farms. This increase was in large part due, I am convinced, to the fact that farm incomes in many parts of the Soviet Union are now as high as incomes of urban workers.

The increase in the number of farm workers is in striking contrast to the continual decline of farm employment in the United States, even though farm output continues to increase here. While some of the increase in workers was associated with the new land development, I was told that the number of farm workers increased by more than 2 per cent each of the last two years in the European part of the U.S.S.R. Unless farm policies change or there is some improvement in urban living conditions, I see no reason why the farm work force will not continue to grow. If this occurs, there will be a significant conflict between farm production and increasing industrial production and construction.

Problems in Expanding Agricultural Output in U.S.S.R.

One of the major reasons why the U.S.S.R. must struggle so hard to feed and clothe its population is that its land resources, while vast in area, are limited in productivity. Generally, the basic soil is excellent, since the U.S.S.R. possesses vast expanses of rich black soil. Almost everywhere, except in the northwestern part of Europe (north of the Ukraine) and in the Kuban, rain is limited and quite variable from year to year. In the areas where rainfall is more adequate, except for the Kuban, the temperature conditions are not conducive to high yields, except for potatoes and hay. I was very much impressed by the Kuban since it receives about 25 inches of rain (about the same as northeastern Nebraska) and has rich, level soil. But there are only about 10,000,000 acres of crop land in the area.

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Given these characteristics of their land, what kind of a farming job is done on the collective and state farms? This is an important question, since if their present farming methods are very inadequate large output increases might be achieved on this land through changes in farming practices. While my trip was not extensive enough to permit definitive conclusions, I feel fairly confident of the following observations.

First, I was favorably surprised at the general appearance of the fields that I saw. Except for fields seen on one auto trip of about 100 miles, the grain fields were well tended. The fields were generally free of weeds and the crops had apparently been sown or planted at the appropriate times. The grain crops were being harvested rapidly and on time. If anything, the small grains were harvested a little early. I should note that I did not visit areas where late summer rains interfere with the grain harvest.

Second, on the farms which I visited, the livestock were given excellent care; in fact, care and labor were lavished upon them, excessively so our group thought. However, most of the farms visited were above average in income and productivity and what we saw may have been exceptional. While we saw some very good herds of dairy cattle and swine, most of the livestock that we saw as we drove in the country were of poor quality. It would seem that improvement of the livestock herds offers an opportunity for increasing livestock output. Even on the farms which we visited feeding practices could be improved. Hog rations were undoubtedly short in protein, especially animal proteins. However, the Russians are going to find it difficult to produce feeds that are high in protein, such as soybeans. Milk cows, on the average, are given too little feed.

Third, I was favorably impressed by cotton production in Central Asia. The Russians have been willing to put a large amount of resources into cotton production. As measured by their income, the cotton producers are the elite of Soviet agriculture.

Fourth, even a casual acquaintance with Soviet agriculture leaves the distinct impression that hay and pasture production could be improved. I cannot remember seeing any really well managed pastures. More hay

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should be introduced into the rotations in many areas, though the present tendency is now in the opposite direction. In fact, most farms in the level land areas seem to have very little hay and pasture land.

Fifth, the Russians have failed in many instances to follow the appropriate crop rotations. There is a tendency to grow too many crops in each area, thus limiting the output of the crops best adapted to local conditions. The rich Kuban area is the best corn area in the U.S.S.R., yet corn has never played a large role there and the recent expansion of corn acreage has not changed the picture very much. Inadequate transportation may explain why an attempt is made to make each area as self-sufficient as possible. We saw little evidence that transportation was being given a high priority at this time.

Sixth, the Russians fail to follow practices that would restrict water and wind erosion. In the new lands area it is planned to fall plow for spring crops. This will leave the land open to wind erosion much of the year. In some areas it would be desirable to plant winter cover crops to reduce water run off, save moisture, and increase the humus content of the soil.

Seventh, the use of mineral fertilizers, except on cotton, sugar beets and vegetables, is extremely limited. However, the Russians will not be able to increase farm output by the use of mineral fertilizers to the same extent we have. Throughout large parts of the U.S.S.R. rainfall is the limiting factor in crop production. We have found that fertilizer has relatively limited effects in areas that receive as little rainfall as occurs on three fourths of the Russian crop land. But there are some areas, especially in the northern part of the European Russia and the Kuban, where mineral fertilizer would have beneficial effects. Much of the animal manures seem to be wasted or used as fuel in areas that do not have timber.

There can be little question that the farm output could be increased on the same land area by changes in agricultural techniques. But I left the U.S.S.R. with the distinct impression that their land, with its generally adverse weather conditions, stands as the major barrier to any large expansion in agricultural output. This is not to say that output cannot or will not grow as a result of better technique, but the opportunities in this direction are much more limited than in the United States.

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The major agricultural opportunity being missed by the Soviet Union, in my opinion, is their failure to expand production in the northern and western part of the European area. To do so would require large investments in clearing land of trees and brush, drainage, liming and fertilization. But in the long run, this area could provide the base for a large and stable livestock output. The level of management required in this area would be significantly greater than is required in the drier new land area of Kazakhstan and western Siberia which may explain why no efforts are being made in this direction.

The disinterest in expanding production under these conditions is strikingly evident as one flies from Helsinki to Leningrad. One can easily recognize the border between Finland and Russia from the air. The farm land which was taken from Finland fifteen years ago now lies in disuse. On one side of the border one sees neat fields, livestock and much farm activity. On the other side one sees the land reverting to its natural condition, with brush clogging drainage ditches laboriously constructed by the Finns. This land is as productive as any land in Finland, yet the Russians have been either unable or unwilling to use it for agricultural purposes.

Opportunities for Saving Labor

While the possibilities for increasing output are relatively limited, I am convinced that the amount of labor used on farms could be reduced substantially. Work norms, such as one dairy maid for 10 cows or one girl for 10 sows, were quite standard on the farms we visited. And these women did not do all the work connected with the livestock assigned to them. Large amounts of labor are required in the fields, despite the rather numerous combines and tractors. In general, five or six workers were required to produce what one worker produces in the United States.

While much labor could be saved by additional investments in such items as elevators, milking machines and feed handling equipment, this is not all of the explanation for the heavy use of labor. Some of the farms visited were very highly mechanized by Russian standards, yet the use of labor differed little from other farms that were not nearly as advanced. In part, the apparent waste of labor arises from the large

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size of the farms and the nature of the collective and state farms. There is almost no room for individual initiative. Even the managers of the collective farms have little to say about operations on their farms. The direct control unit seems to be the machine tractor stations and even they receive their orders from above.

It is something of a paradox that with the present large use of labor that the farm labor force has increased during the past two years and apparently will continue to increase for some time. Since the industrial machine has been based on a large and steady flow of workers from the farms, the rate of industrial expansion may fall as a result of the efforts now being made to increase farm output. Benedictov, Minister of State Farms, said that in 1954 it was necessary to override the various ministries of industrial production to achieve the increase in the number of farm workers.

Summary

During the past two years the U.S.S.R. has taken several steps to increase agricultural production. Farm incomes have been increased to such an extent that the farm work force is now increasing at the expense of the growth of the industrial labor force. This is likely to mean that industrial output will grow at a slower rate than in the past.

The new lands program has been pushed rapidly and should be completed within two or three years. It is likely that the new lands program will make a contribution to the Russian grain supply, perhaps as much as 15 per cent. However, this increase will suffice for only 8 or 9 years of population growth, assuming the continuance of the present rate. The program may run into difficulty by creating a large dust bowl because of the plowing up of natural grasses in an area of limited and variable rainfall. Because of drought in the new lands area this year, yields will be quite low.

The corn program has been pushed with vigor and about half of the planned expansion has been achieved in one year. Corn has been established in many areas where its yield will be very small. While corn will outyield most other crops in dry areas, except possibly grain sorghums, corn production requires up to five times as much

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labor as the small grains. Since most of the corn will replace other grains and hay, the increase in feed per acre will probably not exceed one third.

I saw no evidence that the Russian people were going hungry. Their staple food item, bread, was available in all the stores visited. Most other food items were not available in state stores and could be obtained only on the free market at prices two to four times the state store prices.

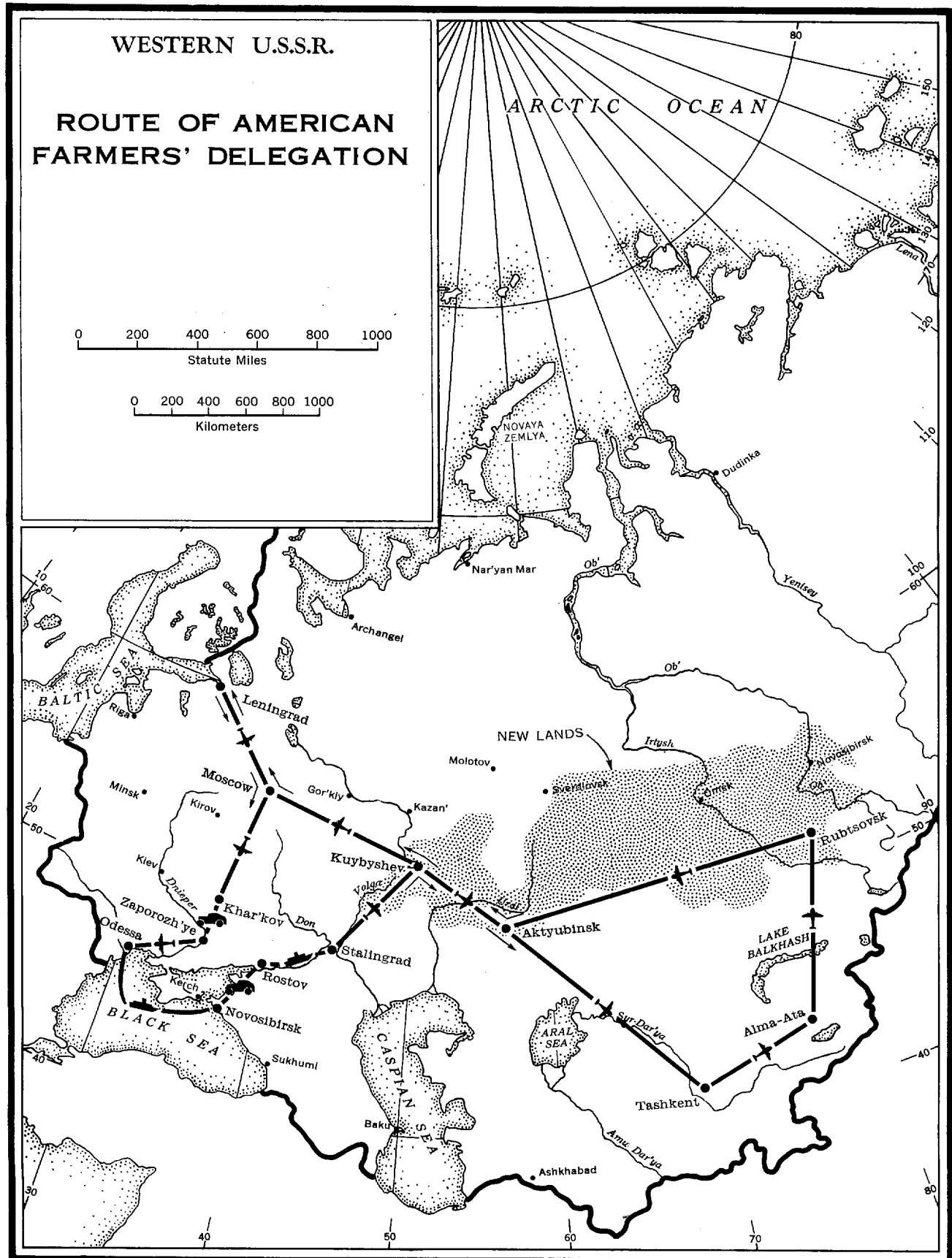
Apparently the food crisis is an anticipated one. Food output has not increased since 1950 and may have actually declined. Soviet planners have been faced with a stagnant food output and a fairly rapid population growth and this may be the basis for their concern.

I was favorably impressed with the crop production that I saw. Livestock production was much less impressive on the average, with most of the cattle and swine being of poor quality.

A major limiting factor in the growth of Soviet agricultural output is the limited and variable rainfall on three fourths of the crop area. More fertilizer would increase output, but gains from fertilizer in the dry areas are likely to be quite limited.

More food, especially potatoes and livestock products, could be produced by clearing, draining, liming and fertilizing land in the northwestern part of European U.S.S.R. But farming in this area presents difficult management problems and the required investment per acre would be much higher than in the new lands area. The Russians now have no plans for expanding the land in crops in this area.

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